AMENDMENT TO CLAIMS:

1. (currently amended) A method for additive mask repair in the semiconductor industry with fine control over lateral dimensions and height comprising:

providing a defective mask in need of additive repair,

depositing material to [[a]] the defective mask by direct write nanolithography from a tip for additive repair, wherein the tip is an atomic force microscope tip and wherein the material coats the tip, and wherein the material is a sol-gel material

converting the deposited material to a solid oxide.

2. (original) The method according to claim 1, wherein the defective mask comprises an optically transparent substrate containing thereon a mask layer which is an optically opaque pattern.

3. (original) The method according to claim 1, wherein the defective mask is a phase shifting photomask.

4-6. (cancelled)

7. (original) The method according to claim 1, wherein the defective mask comprises a clear defect.

8. (original) The method according to claim 1, wherein the defective mask comprises a nanometer scale opening to which the material is added.

9. (original) The method according to claim 1, wherein the defective mask comprises an opening having a lateral dimension of less than about 100 nm to which the material is added.

10. (original) The method according to claim 1, wherein the defective mask comprises an opening having a lateral dimension of less than about 80 nm to which the material is added.

11. (original) The method according to claim 1, wherein the defective mask comprises an opening having a lateral dimension of less than about 56 nm to which the material is added.

12. (original) The method according to claim 1, wherein the defective mask comprises an opening having a lateral dimension of less than about 35 nm to which the material is added.

13. (original) The method according to claim 1, wherein the mask comprises a feature of about 100 nm or less in lateral dimension which is repaired.

14-16. (canceled)

17. (original) The method according to claim 1, wherein the material is an optically transparent material.

18. (original) The method according to claim 1, wherein the material is an optically opaque material.

19. (original) The method according to claim 1, wherein the material is applied as multiple layers.

20. (original) The method according to claim 1, wherein the material is applied to a height of at least 30 nm.

21. (original) The method according to claim 1, wherein the material is applied to a height of at least 45 nm.

22. (original) The method according to claim 1, wherein the material is applied to a height of at least 100 nm.

23. (original) The method according to claim 1, wherein the material is applied to a height of at least 150 nm.

24. (cancelled)

25. (original) The method according to claim 1, wherein the material is a metal oxide or glass, or precursors thereof.

26-28. (cancelled)

29. (original) The method according to claim 1, wherein the material comprises one or more high molecular weight compounds.

30. (original) The method according to claim 1, wherein the material has similar optical properties to the pattern to which it is added.

31. (original) The method of claim 1, wherein the adding step is carried out without vacuum conditions.

32. (original) The method of claim 1, wherein the adding step is repeated with the same material.

33. (original) The method of claim 1, wherein the adding step is repeated with different materials.

34. (currently amended) The method of claim 1, ~~further comprising one or more post-adding steps comprising~~ wherein the converting step comprises external heating, light irradiation, sonic excitation, or chemical reaction by exposure to a vapor or a liquid.

35. (currently amended) The method according to claim 1, wherein the [[adding]] depositing step is carried out as one of a series of [[adding]] depositing steps carried out with a plurality of tips.

36. (original) The method according to claim 1, further comprising subtracting material from the defective mask.

37. (previously presented) The method according to claim 36, wherein the subtracting of material is carried out with use of a tip.

38. (previously presented) The method according to claim 36, wherein the subtracting of material is carried out with use of a scanning probe microscope tip.

39. (previously presented) The method according to claim 36, wherein the subtracting of material is carried out with use of an atomic force microscope tip.

40. (currently amended) A method for nanolithography comprising: (1) providing a mask in need of additive repair, (2) providing a scanning probe microscope tip, wherein the tip is coated with a patterning compound for additive repair of the mask, (3) contacting the coated tip with the mask so that the compound is applied to the mask, wherein the patterning compound is a sol-gel material, and converting the sol-gel material to a solid oxide.

41. (original) The method according to claim 40, wherein the tip is an atomic force microscope tip.

42. (cancelled).

43. (cancelled)

44. (original) The method according to claim 40, wherein the patterning compound comprises a metal.

45. (original) The method according to claim 40, wherein the contacting step is repeated to form a multilayer structure.

46. (original) The method according to claim 40, further comprising subtracting material from the mask.

47-97. (cancelled)

98. (previously presented) The method according to claim 1, wherein the depositing step is carried out without application of voltage bias between the tip and defective mask.

99. (previously presented) The method according to claim 40, wherein the contacting step is carried out without application of voltage bias between the tip and the mask.

100-101. (cancelled)